

CLAIMS

I claim:

1. A roller system having at least one operable roller unit, each roller unit comprising:

5 a. a roller, cylindrical in shape having a length and a diameter, the roller having a center aperture extending through the length of the roller and the roller being fabricated from a polymer;

10 b. a shaft in the form of an elongate cylinder having a diameter sized to rotatably fit within the central aperture of the roller, the shaft further having a means for retention located upon the shaft ends;

15 c. an elongate "U" shaped roller rack, the roller rack sized to extend the length of the roller and having a pair of upwardly extending ends located adjacent the ends of the roller, each end having an aperture sized to receive the respective shaft end and locate the shaft in a fixed location.

2. The roller system as described in claim 1 wherein the polymer forming the roller is a polymer select from the group consisting of polysulfone, polyetherimide, polyetherketone, polyphenylene sulfide and polyvinylidene fluoride.

3. The roller system as described in claim 1 wherein the polymer forming the roller is an acetyl copolymer.

20 4. The roller system as described in claim 1 further comprising a pair of bushings having central openings fitted within the central aperture of the roller and attached to the roller sized to rotatably accept the shaft within their respective central openings.

5. The roller system as described in claim 1 further comprising a pair of bearings having central openings fitted within the central aperture of the roller and attached to the roller sized to rotatably accept the shaft within their respective central openings

6. A roller comprising:

5 a. an outer housing constructed from a polymer selected from the group consisting of polysulfone, polyetherimide, polyetherketone, polyphenylene sulfide and polyvinylidene fluoride;

b. the outer housing further having a central aperture disposed longitudinally therethrough; and

10 c. a bearing located surrounding the central aperture and attached to the outer housing.

7. A monolithic roller comprising a cylindric roller body, the roller body having a length and a diameter, the roller also having an aperture extending along and through the center of the roller, the roller fabricated from a polymeric material.

15 8. The monolithic roller of claim 7 further comprising a pair of bushings fitted within aperture of the roller extending inwardly into the aperture of the roller.

9. The monolithic roller of claim 8 wherein the pair of bushing is merged into a single bushing extending through the roller.

10. The monolithic roller of claim 7 further comprising a pair of bearings fitted within aperture of the roller extending inwardly into the aperture of the roller.

11. The monolithic roller of claim 7 wherein the polymeric material of the roller is selected from the group consisting of polysulfone, polyetherimide, polyetherketone, polyphenylene sulfide and polyvynilidene fluoride.

12. The monolithic roller of claim 7 wherein the polymeric material of the roller is an acetyl copolymer.

13. The monolithic roller of claim 7 wherein the polymer has a compressibility strength of at least 20 psi, impact strength of at least 0.5 ft. Lbs. /in. and flexural strength of at least 20 psi.